

Serial No. 10/536,957

Attorney Docket No. 49-004-TN

**REMARKS**

Claims 1-20 are pending. Claims 18-20 are new. Claims 10-17 have been withdrawn. The applicants respectfully request reconsideration and allowance of this application in view of the above amendments and the following remarks.

Claims 1-4 were rejected under 35 USC 102(b) as being anticipated by Matsumoto (US 5,716,173). The applicants respectfully request that this rejection be withdrawn for the following reasons.

Matsumoto (US 5,716,173) discloses a device which comprises a tool (23), a tool chuck (8) and a tool-holding device, or a tapered collet (20). The tool-holding device (20) is connected to a threaded portion of a draw bolt (24) of the tool holder (8). Furthermore, the draw bolt (24) has a tool engaging portion (25) to receive the tool (23). See figure 1 and column 7, lines 9 to 28 of Matsumoto. Therefore, the tool (23) is held in position by the tool-holding device (20) during an operating process of a spindle (1). See column 8, lines 22 to 24 of Matsumoto.

In the following discussion of the present invention, the reference numbers in parenthesis refer to the illustrated embodiments of the present application for ease of understanding and are not intended to limit the scope of the invention.

Claim 1 requires a device including a tool (24), a tool chuck (20), and a tool-holding device (22, 50, 58) for holding the tool (24) on a tool chuck (20), prior to a heating of a locating region (30) of the tool chuck (20) and prior to an operation for shrink fitting the tool (24) into the tool chuck (20). The tool-holding device (22, 50, 58) of claim 1 has a tool-accommodating region (32, 52, 66) for accommodating at least a part of the tool (24), a connecting region (26, 54, 62) for engaging the tool chuck (20). Further, the device of claim 1 includes a positioning

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opening (48), through which a positioning means (18) to position the tool (24) can be placed against the tool (24) when at least the part of the tool (24) is arranged in the tool accommodating region (32, 52, 66).

The tool-holding device (22, 50, 58) positions the tool (24) prior to a step of connecting the tool (24) to the tool chuck (20). The connection of the tool (24) to the tool chuck (20) is accomplished by shrink fitting. In addition, the tool-holding device (22, 50, 58) is not connected to the tool chuck (20) during an operating process of the machine tool. Rather, it is removed from the tool chuck (20) prior to the connection step. See page 12, lines 27 to 33 of the present specification.

Matsumoto discloses no connection of the tool (23) to the tool chuck (8) by shrink fitting. Rather, it discloses the connection of the tool (23) to a recess of the tool engaging portion (25) of the draw bolt (24) due to a forced rotation of the draw bolt (24) and an axial movement of the tapered collet (20) and, in turn, due to a press fit between the tool (23), the tapered collet (20) and a collet holding bore (19) of the tool chuck (8). See column 7, lines 29 to 34 of Matsumoto.

Further, the tool-holding device (20) has no positioning opening for a positioning means, which is also not disclosed by Matsumoto. Therefore, the tool- holding device or the tapered collet, respectively, (20) is not intended to position the tool (23). In particular, the tool-holding device or the tapered collet (20) is not intended to position the tool (23) before a connecting process. Rather, the tapered collet (20) is used to connect the tool (23) to the holding body (8).

The tool-holding device (20) of the Matsumoto reference is intended to hold the tool (23) in the tool chuck (8); therefore, it is essential for a stable connection of the tool (23) with the tool chuck (8), especially in a working process of the spindle (1). Thus, it would undermine the purpose of the Matsumoto reference to remove the tool-holding device (20) and it would be

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impossible to connect the tool (23) in a proper way to the tool chuck (8) without the tool-holding device (20).

The insertion hole (15) of the Matsumoto reference cannot correspond to the claimed positioning opening, because it is arranged in the pull stud (14). Even if the insertion hole (15) is seen as positioning opening, the Matsumoto reference discloses no positioning means passing through the insertion hole that can be placed against the tool (23).

Finally, if the opening of the tapered collet (20) is seen to correspond to the claimed positioning opening and the draw bolt (24) is seen to correspond to the positioning means, the apparatus of the Matsumoto reference would still not meet the terms of claim 1 because the draw bolt (24) is not intended to position the tool (23); rather, it is intended to connect the tool-holding device (20) to the tool chuck (8).

For at least these reasons, claim 1 cannot be anticipated by the Matsumoto reference, and this rejection should be withdrawn. Claims 2-4 depend on claim 1, directly or indirectly. Therefore, claims 2-4 are considered to be patentably distinguished from the Matsumoto reference at least for the reasons given above with respect to claim 1.

Claims 1-6 were rejected under 35 USC 102(b) as being anticipated by Laube (US 5,286,042). The applicants respectfully request that this rejection be withdrawn for the following reasons.

The patent to Laube (US 5,286,042) discloses a device that includes a tool (72), a tool chuck (20, 120) and a tool-holding device, or a tool clamping expansion sleeve (50, 152). The tool-holding device (50, 152) is connected to a cylindrical extension (30, 130) of the tool chuck (20, 120) by four screws (58, 158). The tool (72) is clamped to the tool chuck (20, 120) due to hydraulic pressure built up by a mechanism that includes the tool-holding device (50, 152), a thin

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wall (52, 162) thereof and a cavity (80) or annular chamber (164), a piston (184) and a screw (84, 180). See figures 1 and 3, column 2, lines 26 to 52, and column 3, lines 14 to 31 of the Laube reference. Therefore, the tool (72) is held in position due to the tool-holding device (50, 150) during an operating process of a spindle. See column 2, lines 57 to 65, and column 3, lines 33 to 39, of Laube.

Unlike the hydraulic connection mechanism of Laube, the claimed device provides a connection of the tool (24) to the tool chuck (20) by a shrink fit. The tool-holding device (22, 50, 58) is not connected to the tool chuck (20) during an operating process of the machine tool. Rather, it is removed from the tool chuck (20) prior to the connection step of the tool (24). See page 12, lines 27 to 33 of the present specification.

The patent to Laube describes no connection of the tool (72) to the tool-chuck (20, 120) by shrink fitting. Rather, the Laube reference discloses the connection of the tool (72) to the tool chuck (20, 120) due to a press fit by means of hydraulic pressure developed by force exerted on the piston (184). See column 2, lines 43 to 52, and column 3, lines 22 to 31, of Laube.

In addition, the tool-holding device (50, 152) has no positioning opening through which a positioning means passes for positioning the tool (72). The Laube patent fails to disclose a positioning means of any sort. Therefore, the tool-holding device, or the tool clamping extension sleeve (50, 152), is not intended to position the tool (72). In particular, the tool-holding device, or the tool clamping extension sleeve (50, 152), is not intended to position the tool (72) before a connecting process. Rather, the tool clamping extension sleeve (50, 152) is used to connect the tool (72) to the tool holder body (20, 120).

For these reasons, claim 1 cannot be anticipated by the Laube reference, and this rejection should be withdrawn. Claims 2-6 depend on claim 1, directly or indirectly. Therefore, claims 2-

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6 are considered to be patentably distinguished from the Laube reference at least for the reasons given above with respect to claim 1.

Claims 1, 2, 4-9 were rejected under 35 USC 103(a) as being unpatentable over Richmond (US 5,567,093) in view of Laube. The applicants respectfully request that this rejection be withdrawn for the following reasons.

Richmond (US 5,567,093) discloses a cutting tool assembly (10) with a tool chuck (12) with an integrally molded tool holder shaft (13) for holding a tool (18). Arranged at a collet (14) and the tool holder shaft (13) is a tool-holding device, or collet nut (16), which interacts via a threaded portion with a threaded portion of the tool holder shaft (13). The tool (18) is held in place on the tool holder shaft (13) by a press fit between the tool-holding device, or collet nut (16), and the tool holder shaft (13). See Richmond, figures 1 and 2, and column 2, lines 32 to 37.

Claim 1 requires a connection of the tool (24) to the tool chuck (20) by means of a shrink fitting. Neither the Richmond reference nor the Laub reference discloses or suggests connecting the tool holder shaft (13) of the tool chuck (12) with the tool-holding device (16) by a shrink fit. Therefore a combination of these two references cannot include a shrink fit.

Furthermore, the patent application claims a positioning opening (48), through which a positioning means (18) to position the tool (24) can be placed against the tool (24) arranged at least partly in the tool-locating region (32, 52, 66). Neither the Richmond reference nor the Laube reference show a positioning opening or a positioning means; therefore, this rejection should be withdrawn.

In particular, the Richmond reference discloses no positioning opening through which a positioning means can be placed against the tool (18). The device of the Richmond reference has no positioning means of any sort. The entrance (19) is not a positioning opening; rather, it is an

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entrance hole for a lubricating fluid to enter the tool (18). In addition, the entrance (19) is not arranged in the tool-holding device as claimed in claim 1.

The Laube fails to disclose a positioning means of any sort. Further, the tool-holding device (50, 152) of Laube has no positioning opening through which a positioning means passes for positioning the tool (72).

Also, no combination of the piston disclosed in the Laube reference and the entrance (19), or hole in the tool (18), of the Richmond reference would include the claimed position opening and corresponding positioning means of claim 1. The piston in the Laube reference is used to adjust the pressure in the tool clamping expansion sleeve (20, 120) and not to position the tool (72). The entrance (19) of Laube cannot correspond to the claimed positioning opening. As stated above, the entrance (19) of Laube is an opening to supply the tool (18) with a lubricating fluid and has nothing to do with positioning the tool.

There is no reason to combine these two references, and even if they are combined, the terms of claim 1 are not satisfied by the resulting combination. That is, since neither the Laube reference nor the Richmond reference discloses a positioning means or a positioning opening, a combination of Laube and Richmond cannot include these features, and this rejection should be withdrawn.

Claims 2 and 4-9 depend on claim 1 directly or indirectly. Therefore, claims 2 and 4-9 are considered to be patentable over the combination of Richmond and Laube for at least the reasons given above with respect to claim 1.

Claim 7 was rejected under 35 USC 103(a) as being unpatentable over Laube. Claim 7 depends indirectly on claim 1. Therefore, claim 7 is considered to be patentable at least for the reasons given above with respect to claim 1.

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Further, the examiner has simply dismissed the limitations of claim 7 as being obvious without citing prior art. Nearly all inventions are combinations of known components, but that does not preclude their patentability.

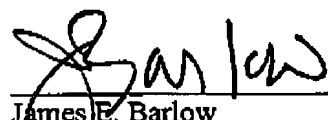
The examiner mentions Matsumoto as evidence that a rolling-element cage is known, but Matsumoto was not listed in the grounds of the rejection of claim 7. If Matsumoto is evidence of obviousness, why is it not included in the grounds of the rejection? The applicants request clarification as to whether Matsumoto is included in the grounds of the rejection of claim 7 or not.

Claims 18-20 are new. Claims 18-20 depend on claim 1 and are thus considered to be patentable at least for the reasons given above with respect to claim 1.

In view of the foregoing, the applicants submit that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

If there are any problems with the payment of fees, please charge any underpayments and credit any overpayments to Deposit Account No. 50-1147.

Respectfully submitted,

  
James E. Barlow  
Reg. No. 32,377

Posz Law Group, PLC  
12040 South Lakes Drive, Suite 101  
Reston, VA 20191  
Phone 703-707-9110  
Fax 703-707-9112  
Customer No. 23400